

WHAT IS CLAIMED IS:

1. A method for allocating bandwidth in a network appliance where the network appliance includes a plurality of guaranteed bandwidth buckets used to evaluate when to pass traffic through the network appliance, the method comprising:
- 5 Providing a shared bandwidth bucket associated with a plurality of the guaranteed bandwidth buckets;
- Allocating bandwidth to the shared bandwidth bucket based on the underutilization of bandwidth in the plurality of guaranteed bandwidth buckets; and
- 10 Sharing excess bandwidth developed from the underutilization of the guaranteed bandwidth allocated to the individual guaranteed bandwidth buckets including borrowing bandwidth from the shared bandwidth bucket by a respective guaranteed bandwidth bucket to allow traffic to pass immediately through the network appliance.
- 15 2. The method of claim 1 wherein the shared bandwidth bucket is a token bucket.
3. The method of claim 1 wherein the guaranteed bandwidth buckets are token buckets.
4. The method of claim 1 wherein the guaranteed bandwidth buckets are credit/debit
- 20 buckets.
5. The method of claim 1 wherein each guaranteed bandwidth bucket is associated with a traffic shaping policy.
- 25 6. The method of claim 1 wherein a plurality of guaranteed bandwidth buckets are associated with a single traffic shaping policy.
7. The method of claim 5 wherein the traffic shaping policy screens based on IP address.

8. The method of claim 7 wherein the traffic shaping policy screens based on the source IP address.
9. The method of claim 7 wherein the traffic shaping policy screens based on the destination
5 IP address.
10. The method of claim 7 wherein the traffic shaping policy screens based on the protocol type.
- 10 11. The method of claim 7 wherein the traffic shaping policy screens based on the
UPD/TCP port number.
12. The method of claim 7 wherein the traffic shaping policy screens based on the type of
service requested.
- 15 13. The method of claim 7 wherein the traffic shaping policy screens based on the traffic
content.
14. A method for allocating bandwidth in a network appliance comprising:
20 Defining a guaranteed bandwidth allocation for a first policy for passing traffic through
the network appliance including using a first bucket to allocate the guaranteed bandwidth;
Defining a guaranteed bandwidth allocation for a second policy for passing traffic
through the network appliance including using a second bucket to allocate the guaranteed
bandwidth;
25 Sharing excess bandwidth developed from the underutilization of the guaranteed
bandwidth allocated to the first and second buckets including
Providing a shared bandwidth bucket associated with first and second buckets; and
Borrowing bandwidth from the shared bandwidth bucket by one of the first and
second buckets when the respective bucket has insufficient bandwidth to allow traffic to
30 pass immediately through the network appliance.

15. An apparatus for allocating bandwidth in a network appliance where the network appliance includes a plurality of guaranteed bandwidth buckets used to evaluate when to pass traffic through the network appliance, the apparatus comprising:

5 a shared bandwidth bucket associated with a plurality of the guaranteed bandwidth buckets;

means for allocating bandwidth to the shared bandwidth bucket based on the underutilization of bandwidth in the plurality of guaranteed bandwidth buckets; and

a scheduler operable to

10 evaluate a packet to determine if a traffic shaping policy should be applied to a given packet,

evaluate a guaranteed bandwidth bucket associated with an identified traffic shaping policy,

15 determine when the guaranteed bandwidth bucket associated with an identified traffic shaping policy has insufficient capacity to support a transfer of the packet through the network, and

borrow bandwidth from the shared bandwidth bucket by a respective guaranteed bandwidth bucket to allow traffic to pass immediately through the network appliance.